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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV SR 069
(11 December 1967)

BY

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ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

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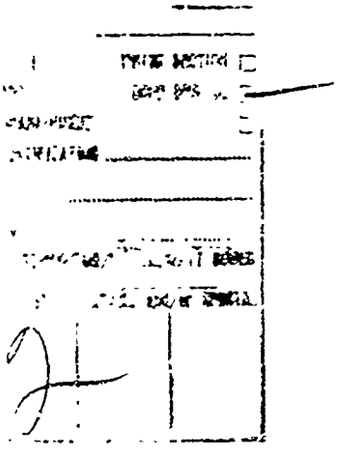

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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV SR 069
(11 December 1967)

By

Gordon L. Dunaway

DR-286 January 1968

DA Task IV650212A127-02

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR 069) are presented for the Space and Missile Systems Organization and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

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INTRODUCTION

Nike-Hydac STV (SR 069) was launched from Launch Complex 33, L-361, White Sands Missile Range (WSMR), New Mexico, at 1456 hours MST, 11 December 1967.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistic Meteorologists for this firing were Gordon L. Dunaway and George Fugate.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to component wind indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from an electronic pilot-balloon wind measuring system (1,2) utilizing a T-9 radar tracker. Pilot-balloons released at the launch site were equipped with light-weight corner reflectors to improve the reflected signal and permit radar tracking. Acquisition of the target was accomplished by means of a boresight television camera. An analog computer converted azimuth and elevation angles and the slant range data into horizontal components of position with respect to the radar as reference. Changes of these components per unit time were converted into East-West and North-South wind components values which were then displaced on two plotters with a specially designed wind velocity ballistic chart. It is possible to read directly from the chart both the mean wind component values and the mean ballistic wind components in the various ballistic layers.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 69,331 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by Atmospheric Sciences Laboratory, White Sands Missile Range, New Mexico, and are the basis for data appearing in Table XII.

REFERENCES

1. Engineering Division, "Pilot-Balloon Radar Tracker at White Sands Missile Range", Atmospheric Sciences Laboratory, U. S. Army Electronics Command, White Sands Missile Range, New Mexico.

2. Kubinski, S. F., April 1967: "A Comparative Evaluation of the Automatic Tracking Pilot-Balloon Wind Measuring System". Meteorological Support Division, Atmospheric Sciences Laboratory, U. S. Army Electronics Command, White Sands Missile Range, New Mexico, ECOM-5121.

PAYLOAD		215	Pounds
CORIOLIS DISPLACEMENT	WEST	4.9	Miles
SECOND-STAGE IGNITION	TIME	20.0	Seconds
	ALTITUDE	35,767	Feet MSL
PEAK	TIME	236	Seconds
	ALTITUDE	715,900	Feet MSL
UNIT WIND EFFECT	HEAD	2.1575	Miles/MPH
	CROSS	2.2444	Miles/MPH
	TAIL	2.1672	Miles/MPH
TOWER TILT EFFECT		14.53	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV SR 069

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
11- 60	.1256
60- 108	.0842
108- 148	.0533
148- 184	.0408
184- 216	.0262
216- 300	.0620
300- 400	.0580
400- 600	.0720
600- 800	.0580
800-1000	.0390

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.0630
1400- 2000	.0662
2000- 2500	.0350
22500- 3000	.0277
3000- 3500	.0142
3500- 4000	.0052
4000- 4160	-.0026
4160- 9000	-.0141
9000-15000	-.0168
15000-21000	-.0156

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
21000-26000	-.0132
26000-31767	-.0162
31767-36000	.1310
36000-41000	.0566
41000-46000	.0260
46000-51000	.0154
51000-56000	.0101
56000-61000	.0063
61000-66000	.0040
66000-69331	.0009

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC STV SR 069

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 1230 MST		2 1300 MST		3 1330 MST		4 1345 MST		5 1400 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6 1415 MST		7 1433 MST		8 1443 MST		9 1456 MST			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	3.0S	0.0	4.0S	0.0	3.0S	0.0	8.0S	0.0		
2	3.0	0.0	4.0	0.0	3.0	0.0	7.0	0.0		
3	3.0	0.0	4.0	0.0	3.0	0.0	7.0	0.0		
4	3.0	0.0	4.0	0.0	3.0	0.0	7.0	0.0		
5	3.0	0.0	4.0	0.0	3.0	0.0	6.0	0.0		

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STV SR 069

C = CALM

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 2 = 88 Feet 3 = 128 Feet 4 = 168 Feet 5 = 200 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 1230 MST		2 1300 MST		3 1330 MST		4 1345 MST		5 1400 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	1.5S	0.0	2.0N	1.0E	0.0	0.0	1.0S	1.0W	3.0S	1.0E
300- 400	1.0N	0.0	2.0	0.0	2.0S	0.0	1.0	0.0	4.0	0.0
400- 600	0.5	1.5W	2.0	1.0W	2.0	1.0W	1.0	1.0W	3.0	0.0
600- 800	0.5	2.0	1.0S	2.0	1.0	2.0	3.0	1.0	4.0	2.0W
800-1000	1.5S	1.5E	2.0	3.0	0.0	3.0	1.0	5.0	4.0	1.0
1000-1400	0.5	2.5W	2.0	4.0	1.5N	3.0	0.0	7.0	0.0	4.0
1400-2000	3.0N	10.0	3.0N	12.0	3.0	9.0	1.0N	10.0	2.0N	8.0
2000-2500	8.5	12.0	6.0	14.0	7.0	12.0	6.0	13.0	6.0	15.0
2500-3000	13.5	10.0	10.0	12.0	12.0	14.0	6.0	12.0	10.0	17.0
3000-3500	17.0	8.5	18.0	8.0	18.0	15.0	6.0	15.0	20.0	18.0
3500-4000	23.0	11.0	28.0	16.0	18.0	17.0	10.0	15.0	31.0	18.0

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
T-9 RADAR TRACKER METHOD
NIKE-HYDAC STV SR 069

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6 1415 MST		7 1433 MST		8 1443 MST		9 1456 MST			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	5.0S	0.0	7.0S	0.0	0.0	1.0W	7.0S	0.0		
300- 400	6.0	2.0W	6.0	1.0E	3.0S	2.0	7.5	0.0		
400- 600	7.0	2.0	5.0	0.0	9.0	1.0	8.0	1.0W		
600- 800	5.0	3.0	5.0	1.0W	5.0	3.0	8.0	2.0		
800-1000	4.0	4.0	5.0	0.0	6.0	4.0	7.0	2.0		
1000-1400	0.0	6.0	3.0	1.0W	6.0	6.0	8.0	5.0		
1400-2000	3.0N	14.0	2.0N	7.0	5.0	6.0	0.0	12.0		
2000-2500	8.0	14.0	5.0	14.0	2.0N	15.0	4.0N	14.0		
2500-3000	16.0	17.0	16.0	18.0	12.0	17.0	13.0	19.0		
3000-3500	25.0	23.0	27.0	24.0	24.0	24.0	25.0	25.0		
3500-4000	32.0	22.0	32.0	20.0	31.0	22.0	28.0	24.0		

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (CONT)
T-9 RADAR TRACKER METHOD
NIKE-HYDAC STV SR 069

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1 1055 MST		2* 1300 MST		3 1540 MST	
	N-S	E-W	N-S	E-W	N-S	E-W
4000- 4160	22.5N	4.0W	18.0N	11.5W	22.5N	13.0W
4160- 9000	30.0	11.0	28.0	10.5	27.5	16.0
9000-15000	40.5	7.0	38.5	14.0	32.0	18.5
15000-21000	36.0	13.0	35.0	12.5	25.5	21.0
21000-26000	38.5	14.0	30.5	25.5	28.5	16.5
26000-31767	37.0	21.5	34.5	29.0	34.0	19.5
31767-36000	44.0	16.0	44.0	25.5	23.5	40.5
36000-41000	34.5	20.0	22.5	27.0	22.0	38.0
41000-46000	40.5	23.5	34.5	29.0	33.0	27.5
46000-51000	28.0	10.0	18.5	15.5	22.0	18.5
51000-56000	17.0	6.0	9.5	11.5	13.0	11.0
56000-61000	14.0	5.0	14.0	2.5	8.0	4.5
61000-66000	10.5	4.0	14.0	5.0E	7.0	4.0
66000-69331	11.5	4.0	11.5	4.0	10.5	6.0

TABLE V. RAWINSONDE-MEASURED WIND DATA
NIKE-HYDAC STV SR 069

*Rawin, Telecompute data not available.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

SIGNIFICANT LEVEL DATA
0055003901
WHITE SANDS SITE
TABLE VI

MSTK SITE COORDINATES
E 488,500 FEET
N 185,045 FEET

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT
874.1	3989.0	7.0	-11.2	26.0
859.0	4917.2	3.4	-14.3	24.0
839.0	5146.4	5.2	-12.3	27.0
775.0	7283.9	2.9	-15.2	25.0
751.0	8103.0	4.9	-10.9	19.0
716.0	9457.2	5.6	-11.6	17.0
625.0	13004.2	2.5	-11.0	17.0
452.0	21273.3	-17.7	-34.4	16.0
342.0	27911.2	-24.6	-50.3	19.0
317.0	29646.1	-27.3	0.	-0. **
280.0	32451.5	-43.5	0.	-0. **
248.0	35373.0	-44.9	0.	-0. **
229.0	38856.3	-45.0	0.	-0. **
209.0	38856.6	-47.5	0.	-0. **
139.0	48278.7	-44.7	0.	-0. **
122.0	49994.4	-48.0	0.	-0. **
105.0	52970.8	-47.6	0.	-0. **
101.0	53748.7	-44.1	0.	-0. **
85.0	57209.2	-46.9	0.	-0. **
77.0	59188.8	-45.0	0.	-0. **
73.0	60276.7	-59.4	0.	-0. **
61.0	63933.3	-45.7	0.	-0. **
45.0	70168.0	-54.8	0.	-0. **
26.0	81583.9	-60.1	0.	-0. **
14.5	93802.7	-53.6	0.	-0. **
10.0	101698.9	-54.5	0.	-0. **
8.8	104441.2	-49.8	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
0055003901
WHITE SANDS SITE
TABLE VII

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	876.1	7.0	-11.2	26.0	1088.4	652.1	0.	0.	1.000255
4000.0	875.7	6.9	-11.3	26.0	1088.2	652.0	359.8	0.1	1.000255
4500.0	859.6	3.5	-14.2	26.0	1081.5	648.0	349.9	2.8	1.000251
5000.0	843.6	4.8	-12.8	26.8	1056.5	649.5	340.1	5.5	1.000247
5500.0	828.0	4.8	-12.8	26.7	1036.7	649.5	330.3	8.2	1.000242
6000.0	812.6	4.3	-13.5	24.2	1019.5	648.9	320.4	11.0	1.000238
6500.0	797.5	3.7	-14.2	25.7	1002.8	648.2	322.6	14.1	1.000233
7000.0	782.7	3.2	-14.9	25.2	985.9	647.6	334.3	17.5	1.000229
7500.0	768.2	3.5	-15.6	23.3	966.7	647.9	338.7	20.5	1.000224
8000.0	753.9	4.7	-16.6	19.7	944.7	649.3	340.5	23.3	1.000219
8500.0	740.0	5.1	-17.1	18.4	925.8	649.8	340.0	24.5	1.000214
9000.0	726.3	5.4	-17.3	17.7	907.8	650.1	339.1	25.5	1.000210
9500.0	712.9	5.6	-17.6	17.0	890.4	650.3	337.7	25.9	1.000206
10000.0	699.6	5.0	-18.1	17.0	875.7	649.6	336.8	26.4	1.000202
10500.0	686.6	4.4	-18.6	17.0	861.2	648.9	340.6	28.4	1.000199
11000.0	673.8	3.8	-19.1	17.0	847.0	648.3	344.7	30.8	1.000195
11500.0	661.3	3.2	-19.5	17.0	833.0	647.6	349.8	34.2	1.000192
12000.0	649.0	2.7	-20.0	17.0	819.3	646.9	353.9	37.3	1.000189
12500.0	636.9	2.1	-20.5	17.0	805.7	646.2	356.6	39.8	1.000185
13000.0	625.1	1.5	-21.0	17.0	792.4	645.5	357.9	41.1	1.000182
13500.0	613.5	0.3	-21.9	17.1	780.4	644.2	358.1	41.4	1.000179
14000.0	601.1	-0.8	-22.8	17.1	768.5	642.8	356.5	40.9	1.000176
14500.0	589.4	-2.0	-23.7	17.2	756.9	641.4	354.0	39.8	1.000173
15000.0	578.0	-3.1	-24.7	17.2	745.4	640.0	351.4	38.8	1.000170
15500.0	566.8	-4.3	-25.8	17.3	734.1	638.6	348.9	37.8	1.000168
16000.0	555.8	-5.5	-26.5	17.4	723.0	637.2	345.9	37.5	1.000165
16500.0	545.0	-6.6	-27.4	17.4	712.1	635.8	342.8	37.5	1.000162
17000.0	534.4	-7.8	-28.4	17.5	701.4	634.4	339.4	37.8	1.000159
17500.0	524.1	-8.9	-29.3	17.5	690.8	633.0	336.0	37.4	1.000157
18000.0	513.9	-10.1	-30.2	17.6	680.4	631.6	332.7	36.5	1.000154

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1015 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
0095003991
WHITE SANDS SITE
TABLE VII (Cont.)

MSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL (FEET)	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
18500.0	503.9	-11.3	-31.2	17.7	670.2	630.3	331.5	39.2	1.000152
19000.0	496.1	-12.4	-32.1	17.7	660.5	626.8	331.8	39.3	1.000149
19500.0	488.6	-13.5	-33.0	17.8	650.2	623.4	332.4	39.0	1.000147
20000.0	481.2	-14.7	-34.0	17.8	640.2	619.8	332.9	38.7	1.000145
20500.0	473.9	-15.9	-34.9	17.8	630.5	616.3	333.5	38.4	1.000142
21000.0	466.9	-17.0	-35.9	17.8	621.2	612.7	334.0	38.1	1.000140
21500.0	459.8	-18.3	-36.9	17.8	611.9	609.1	334.6	37.8	1.000138
22000.0	452.9	-19.5	-37.9	17.8	602.8	605.4	335.2	37.5	1.000135
22500.0	446.1	-20.8	-38.9	17.8	593.9	601.8	335.8	37.2	1.000133
23000.0	439.4	-22.1	-39.9	17.8	585.1	598.1	336.4	36.9	1.000131
23500.0	432.8	-23.4	-41.0	17.8	576.5	594.4	337.0	36.6	1.000129
24000.0	426.3	-24.8	-42.0	17.8	568.0	590.7	337.6	36.3	1.000127
24500.0	419.9	-26.2	-43.1	17.8	559.7	587.0	338.2	36.0	1.000125
25000.0	413.6	-27.6	-44.1	17.8	551.4	583.3	338.8	35.7	1.000123
25500.0	407.5	-29.0	-45.2	17.8	543.3	579.5	339.4	35.4	1.000121
26000.0	401.4	-30.5	-46.2	17.8	535.3	575.8	340.0	35.1	1.000119
26500.0	395.4	-32.0	-47.3	17.8	527.4	572.0	340.6	34.8	1.000117
27000.0	389.5	-33.5	-48.3	17.8	519.6	568.2	341.2	34.5	1.000115
27500.0	383.7	-35.0	-49.4	17.8	511.9	564.4	341.8	34.2	1.000113
28000.0	378.0	-36.6	-50.4	17.8	504.3	560.6	342.4	33.9	1.000111
28500.0	372.4	-38.2	-51.5	17.8	496.8	556.8	343.0	33.6	1.000109
29000.0	366.9	-39.8	-52.5	17.8	489.4	553.0	343.6	33.3	1.000107
29500.0	361.5	-41.4	-53.6	17.8	482.1	549.1	344.2	33.0	1.000105
30000.0	356.2	-43.1	-54.6	17.8	474.9	545.3	344.8	32.7	1.000103
30500.0	351.0	-44.8	-55.7	17.8	467.8	541.4	345.4	32.4	1.000101
31000.0	345.9	-46.5	-56.7	17.8	460.8	537.5	346.0	32.1	1.000099
31500.0	340.9	-48.2	-57.8	17.8	453.9	533.6	346.6	31.8	1.000098
32000.0	336.0	-49.9	-58.8	17.8	447.1	529.7	347.2	31.5	1.000096
32500.0	331.2	-51.7	-59.9	17.8	440.4	525.8	347.8	31.2	1.000094
33000.0	326.4	-53.5	-61.0	17.8	433.8	521.8	348.4	30.9	1.000092

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
0055003901
WHITE SANDS SITE
TABLE VII (Cont).

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	266.7	-44.4	0.	-0. **	406.2	589.0	328.3	40.2	1.000090
34000.0	260.8	-44.8	0.	-0. **	397.8	588.4	327.7	42.5	1.000089
34500.0	254.9	-45.2	0.	-0. **	389.6	587.9	327.2	45.5	1.000087
35000.0	249.2	-45.6	0.	-0. **	381.5	587.4	327.7	47.7	1.000085
35500.0	243.8	-45.8	0.	-0. **	373.3	587.1	328.7	49.6	1.000083
36000.0	238.1	-45.5	0.	-0. **	364.4	587.5	330.9	50.3	1.000081
36500.0	232.7	-45.2	0.	-0. **	355.8	587.9	333.3	50.9	1.000079
37000.0	227.5	-45.2	0.	-0. **	347.7	587.9	335.7	50.4	1.000077
37500.0	222.4	-45.8	0.	-0. **	340.8	587.1	338.2	49.9	1.000076
38000.0	217.3	-46.4	0.	-0. **	334.0	586.3	340.8	49.6	1.000074
38500.0	212.4	-47.1	0.	-0. **	327.4	585.5	343.5	49.4	1.000073
39000.0	207.6	-47.8	0.	-0. **	320.9	584.5	344.9	48.2	1.000071
39500.0	202.6	-48.8	0.	-0. **	314.7	583.2	346.1	47.0	1.000070
40000.0	197.8	-49.8	0.	-0. **	308.7	581.9	346.3	45.4	1.000069
40500.0	193.2	-50.8	0.	-0. **	302.7	580.6	346.2	43.8	1.000067
41000.0	188.6	-51.9	0.	-0. **	296.9	579.2	345.7	42.3	1.000066
41500.0	184.1	-52.9	0.	-0. **	291.2	577.9	344.9	40.9	1.000065
42000.0	179.7	-53.9	0.	-0. **	285.6	576.5	342.3	40.1	1.000064
42500.0	175.5	-54.9	0.	-0. **	280.2	575.2	338.4	39.7	1.000062
43000.0	171.3	-55.9	0.	-0. **	274.8	573.9	333.6	40.1	1.000061
43500.0	167.3	-57.0	0.	-0. **	269.6	572.5	328.2	41.1	1.000060
44000.0	163.3	-58.0	0.	-0. **	264.4	571.2	323.0	42.8	1.000059
44500.0	159.5	-59.0	0.	-0. **	259.4	569.8	317.9	44.9	1.000058
45000.0	155.7	-60.0	0.	-0. **	254.5	568.5	315.3	46.3	1.000057
45500.0	152.0	-61.0	0.	-0. **	249.6	567.1	314.8	47.3	1.000056
46000.0	148.4	-62.1	0.	-0. **	244.9	565.7	314.7	48.2	1.000055
46500.0	144.8	-63.1	0.	-0. **	240.2	564.4	315.5	48.6	1.000053
47000.0	141.4	-64.1	0.	-0. **	235.7	563.0	316.3	49.0	1.000052
47500.0	138.1	-65.1	0.	-0. **	231.2	561.6	317.9	48.9	1.000051
48000.0	134.8	-66.1	0.	-0. **	226.9	560.2	319.6	48.7	1.000051

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
00$500391
WHITE SANDS SITE
TABLE VII (Cont)

MSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	131.5	-66.9	0.	-0. **	222.2	559.2	321.5	49.2	1.000049
49000.0	128.3	-67.2	0.	-0. **	217.0	558.7	323.8	50.0	1.000048
49500.0	125.1	-67.6	0.	-0. **	212.0	558.2	325.7	50.3	1.000047
50000.0	122.0	-68.0	0.	-0. **	207.1	557.7	328.1	49.9	1.000046
50500.0	118.9	-67.9	0.	-0. **	201.9	557.8	330.4	49.4	1.000045
51000.0	116.0	-67.9	0.	-0. **	196.8	557.9	332.4	48.4	1.000044
51500.0	113.1	-67.8	0.	-0. **	191.9	558.0	334.4	47.3	1.000043
52000.0	110.3	-67.7	0.	-0. **	187.0	558.1	337.2	42.7	1.000042
52500.0	107.5	-67.7	0.	-0. **	182.3	558.2	340.4	36.2	1.000041
53000.0	104.8	-67.5	0.	-0. **	177.6	558.4	343.7	30.2	1.000040
53500.0	102.3	-65.2	0.	-0. **	171.4	561.5	347.7	26.1	1.000038
54000.0	99.7	-64.3	0.	-0. **	166.4	562.7	351.6	22.0	1.000037
54500.0	97.3	-64.7	0.	-0. **	162.6	562.2	359.4	18.1	1.000036
55000.0	94.9	-65.1	0.	-0. **	158.9	561.6	7.9	14.1	1.000035
55500.0	92.6	-65.5	0.	-0. **	155.3	561.1	10.1	12.0	1.000035
56000.0	90.3	-65.9	0.	-0. **	151.8	560.5	4.1	12.4	1.000034
56500.0	88.1	-66.3	0.	-0. **	148.3	560.0	358.3	12.8	1.000033
57000.0	85.9	-66.7	0.	-0. **	145.0	559.4	357.4	15.0	1.000032
57500.0	83.8	-66.6	0.	-0. **	141.3	559.6	356.6	17.2	1.000031
58000.0	81.7	-66.1	0.	-0. **	137.5	560.2	355.4	17.9	1.000031
58500.0	79.7	-65.7	0.	-0. **	133.8	560.9	354.1	17.7	1.000030
59000.0	77.7	-65.2	0.	-0. **	130.2	561.5	352.8	17.5	1.000029
59500.0	75.8	-63.4	0.	-0. **	126.0	563.9	351.4	17.2	1.000028
60000.0	74.0	-60.8	0.	-0. **	121.4	567.4	350.1	16.9	1.000027
60500.0	72.2	-59.8	0.	-0. **	117.9	568.8	346.7	14.7	1.000026
61000.0	70.5	-60.6	0.	-0. **	115.5	567.6	341.8	11.0	1.000026
61500.0	68.7	-61.5	0.	-0. **	113.2	566.5	337.4	7.9	1.000025
62000.0	67.1	-62.4	0.	-0. **	110.9	565.3	337.4	10.3	1.000025
62500.0	65.4	-63.2	0.	-0. **	108.6	564.2	337.4	12.7	1.000024
63000.0	63.9	-64.1	0.	-0. **	106.4	563.0	337.4	13.9	1.000024

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
003500390I
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	62.3	-65.0	0.	-0. **	104.3	561.8	337.4	14.3	1.000023
64000.0	60.8	-65.6	0.	-0. **	102.1	561.0	337.8	14.7	1.000023
64500.0	59.3	-64.9	0.	-0. **	99.3	561.9	339.7	14.8	1.000022
65000.0	57.9	-64.2	0.	-0. **	96.5	562.9	341.7	14.9	1.000021
65500.0	56.5	-63.5	0.	-0. **	93.9	563.8	350.3	14.7	1.000021
66000.0	55.1	-62.7	0.	-0. **	91.3	564.8	1.9	14.4	1.000020
66500.0	53.8	-62.0	0.	-0. **	88.8	565.8	12.5	14.4	1.000020
67000.0	52.5	-61.3	0.	-0. **	86.4	566.7	24.4	14.9	1.000019
67500.0	51.3	-60.6	0.	-0. **	84.0	567.7	36.4	15.4	1.000019
68000.0	50.0	-59.9	0.	-0. **	81.7	568.6	40.4	16.6	1.000018
68500.0	48.8	-59.2	0.	-0. **	79.5	569.6	42.1	17.9	1.000018
69000.0	47.6	-58.5	0.	-0. **	77.3	570.5	43.5	18.9	1.000017
69500.0	46.5	-57.8	0.	-0. **	75.2	571.5	62.6	17.5	1.000017
70000.0	45.4	-57.0	0.	-0. **	73.1	572.4	41.7	16.1	1.000016
70500.0	44.3	-56.9	0.	-0. **	71.4	572.6	40.6	14.5	1.000016
71000.0	43.2	-57.0	0.	-0. **	69.7	572.4	39.3	12.5	1.000016
71500.0	42.2	-57.2	0.	-0. **	68.1	572.2	38.0	10.5	1.000015
72000.0	41.2	-57.3	0.	-0. **	66.5	572.0	25.1	12.2	1.000015
72500.0	40.2	-57.5	0.	-0. **	65.0	571.8	9.8	14.6	1.000014
73000.0	39.3	-57.6	0.	-0. **	63.5	571.6	356.5	16.9	1.000014
73500.0	38.3	-57.8	0.	-0. **	62.0	571.5	355.4	18.3	1.000014
74000.0	37.4	-57.9	0.	-0. **	60.6	571.3	354.2	19.8	1.000013
74500.0	36.5	-58.1	0.	-0. **	59.2	571.1	354.3	22.3	1.000013
75000.0	35.7	-58.2	0.	-0. **	57.8	570.9	355.8	26.4	1.000013
75500.0	34.8	-58.3	0.	-0. **	56.5	570.7	357.3	30.4	1.000013
76000.0	34.0	-58.5	0.	-0. **	55.2	570.5	1.1	30.3	1.000012
76500.0	33.2	-58.6	0.	-0. **	53.9	570.3	7.0	26.1	1.000012
77000.0	32.4	-58.8	0.	-0. **	52.6	570.1	12.9	21.9	1.000012
77500.0	31.6	-58.9	0.	-0. **	51.4	569.9	15.9	19.1	1.000011
78000.0	30.9	-59.1	0.	-0. **	50.2	569.7	14.0	18.7	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
005500391
WHITE SANDS SITE

TABLE VII (Cont)

WSTN SITE COORDINATES
E 486,589 FEET
N 185,043 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
78500.0	30.1	-59.2	0.	-0. **	49.1	569.5	12.0	18.2	1.000011
79000.0	29.4	-59.4	0.	-0. **	47.9	569.3	10.8	17.4	1.000011
79500.0	28.7	-59.5	0.	-0. **	46.8	569.1	11.6	15.5	1.000010
80000.0	28.0	-59.6	0.	-0. **	45.8	569.0	12.4	13.7	1.000010
80500.0	27.4	-59.8	0.	-0. **	44.7	568.8	12.5	12.6	1.000010
81000.0	26.7	-59.9	0.	-0. **	43.7	568.6	7.1	16.5	1.000010
81500.0	26.1	-60.1	0.	-0. **	42.7	568.4	1.7	20.4	1.000009
82000.0	25.5	-59.9	0.	-0. **	41.6	568.7	356.3	24.4	1.000009
82500.0	24.9	-59.6	0.	-0. **	40.6	569.0	356.9	24.9	1.000009
83000.0	24.3	-59.3	0.	-0. **	39.6	569.4	357.7	25.3	1.000009
83500.0	23.7	-59.1	0.	-0. **	38.6	569.7	358.5	25.7	1.000009
84000.0	23.1	-58.8	0.	-0. **	37.6	570.1	356.4	25.5	1.000008
84500.0	22.6	-58.5	0.	-0. **	36.7	570.4	353.7	25.2	1.000008
85000.0	22.1	-58.3	0.	-0. **	35.8	570.8	351.0	24.9	1.000008
85500.0	21.5	-58.0	0.	-0. **	34.9	571.1	348.9	24.0	1.000008
86000.0	21.0	-57.7	0.	-0. **	34.0	571.5	347.1	22.9	1.000008
86500.0	20.5	-57.5	0.	-0. **	33.2	571.8	345.4	21.8	1.000007
87000.0	20.1	-57.2	0.	-0. **	32.4	572.2	343.9	20.6	1.000007
87500.0	19.6	-56.9	0.	-0. **	31.6	572.5	342.9	19.3	1.000007
88000.0	19.1	-56.7	0.	-0. **	30.8	572.9	341.8	18.0	1.000007
88500.0	18.7	-56.4	0.	-0. **	30.0	573.2	340.8	17.0	1.000007
89000.0	18.2	-56.2	0.	-0. **	29.3	573.6	340.8	18.7	1.000007
89500.0	17.8	-55.9	0.	-0. **	28.6	573.9	340.8	20.3	1.000006
90000.0	17.4	-55.6	0.	-0. **	27.8	574.3	340.8	21.9	1.000006
90500.0	17.0	-55.4	0.	-0. **	27.2	574.6	340.1	22.5	1.000006
91000.0	16.6	-55.1	0.	-0. **	26.5	575.0	339.1	22.3	1.000006
91500.0	16.2	-54.8	0.	-0. **	25.8	575.3	338.0	22.2	1.000006
92000.0	15.8	-54.6	0.	-0. **	25.2	575.7	336.7	22.1	1.000006
92500.0	15.4	-54.3	0.	-0. **	24.6	576.0	333.4	22.1	1.000005
93000.0	15.1	-54.0	0.	-0. **	24.0	576.4	330.2	22.1	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

UPPER AIR DATA
0055003901
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.7	-53.8	0.	-0. **	23.4	576.7	327.0	22.1	1.000005
94000.0	14.4	-53.6	0.	-0. **	22.8	576.9	324.1	21.9	1.000005
94500.0	14.0	-53.7	0.	-0. **	22.3	576.8	321.5	21.6	1.000005
95000.0	13.7	-53.7	0.	-0. **	21.8	576.8	318.9	21.4	1.000005
95500.0	13.4	-53.8	0.	-0. **	21.3	576.7	316.0	21.2	1.000005
96000.0	13.1	-53.9	0.	-0. **	20.8	576.6	311.4	21.6	1.000005
96500.0	12.8	-53.9	0.	-0. **	20.3	576.5	306.8	21.9	1.000005
97000.0	12.5	-54.0	0.	-0. **	19.8	576.5	302.2	22.3	1.000004
97500.0	12.2	-54.0	0.	-0. **	19.4	576.4	299.6	22.8	1.000004
98000.0	11.9	-54.1	0.	-0. **	18.9	576.3	298.1	23.5	1.000004
98500.0	11.6	-54.1	0.	-0. **	18.5	576.2	296.7	24.1	1.000004
99000.0	11.4	-54.2	0.	-0. **	18.1	576.2	295.1	24.8	1.000004
99500.0	11.1	-54.2	0.	-0. **	17.7	576.1	292.2	25.9	1.000004
100000.0	10.8	-54.3	0.	-0. **	17.2	576.0	289.4	27.1	1.000004
100500.0	10.6	-54.4	0.	-0. **	16.8	575.9	286.5	28.2	1.000004
101000.0	10.3	-54.4	0.	-0. **	16.5	575.9			1.000004
101500.0	10.1	-54.5	0.	-0. **	16.1	575.8			1.000004
102000.0	9.9	-54.0	0.	-0. **	15.7	576.4			1.000003
102500.0	9.6	-53.1	0.	-0. **	15.3	577.6			1.000003
103000.0	9.4	-52.3	0.	-0. **	14.8	578.7			1.000003
103500.0	9.2	-51.4	0.	-0. **	14.4	579.8			1.000003
104000.0	9.0	-50.6	0.	-0. **	14.1	580.9			1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1055 HRS MST
ASCENSION NO. 991

MANDATORY LEVELS
0055003901
WHITE SANDS SITE
TABLE VIII

WSTN SITE COORDINATES
E 408,580 FEET
N 185,045 FEET

PRESSURE	GEOPOTENTIAL	TEMPERATURE		REL. HUM.	WIND DATA	
		AIR	DEWPOINT		DIRECTION	SPEED
MILLIBARS	FEET	DEGREES CENTIGRADE		PERCENT	DEGREES(TN)	KNOTS
850.0	4797.	4.2	-13.4	26.	344.1	4.4
800.0	6416.	3.8	-14.1	26.	320.7	13.5
750.0	8134.	4.9	-16.9	19.	340.7	23.8
700.0	9982.	5.0	-18.1	17.	336.7	26.3
650.0	11956.	2.7	-20.0	17.	353.7	37.1
600.0	14068.	-0.9	-22.9	17.	356.2	40.7
550.0	16324.	-6.1	-27.0	17.	343.8	37.5
500.0	18745.	-11.7	-31.5	18.	331.4	34.6
450.0	21361.	-18.0	-36.6	18.	343.0	39.2
400.0	24210.	-25.1	-42.4	18.	341.2	48.1
350.0	27341.	-33.2	-49.1	19.	341.2	49.3
300.0	30845.	-40.1	0.	-0.**	331.5	40.6
250.0	34869.	-45.5	0.	-0.**	327.6	47.4
200.0	39732.	-49.4	0.	-0.**	346.3	46.0
175.0	42567.	-55.0	0.	-0.**	337.2	39.6
150.0	45750.	-61.6	0.	-0.**	314.4	48.0
125.0	49393.	-67.6	0.	-0.**	325.8	50.3
100.0	53808.	-64.3	0.	-0.**	351.1	22.5
80.0	58255.	-65.7	0.	-0.**	354.3	17.7
70.0	60958.	-60.9	0.	-0.**	340.5	10.1
60.0	64064.	-65.2	0.	-0.**	338.8	14.8
50.0	67754.	-59.9	0.	-0.**	40.3	16.5
40.0	72373.	-57.5	0.	-0.**	6.0	15.2
30.0	78311.	-59.2	0.	-0.**	11.6	18.1
25.0	82051.	-59.7	0.	-0.**	356.7	24.8
20.0	86655.	-57.2	0.	-0.**	343.9	20.5
15.0	92670.	-54.0	0.	-0.**	329.7	22.1
10.0	101208.	-54.5	0.	-0.**		

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

SIGNIFICANT LEVEL DATA
0063003902
WHITE SANDS SITE
TABLE ZX

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT
871.5	3989.0	13.0	-10.1	19.0
851.0	4641.7	10.3	-10.5	22.0
813.0	5883.0	7.8	-11.5	24.0
770.0	7358.3	9.8	-12.8	19.0
717.0	9286.6	5.5	-16.4	19.0
656.0	11666.1	4.0	-18.2	18.0
504.0	18497.4	-12.0	-31.6	18.0
441.0	21794.0	-21.7	-39.2	19.0
344.0	27665.5	-33.9	-49.7	19.0
273.0	32872.8	-45.0	0.	-0. **
250.0	34806.9	-45.5	0.	-0. **
243.0	35431.5	-44.8	0.	-0. **
213.0	38310.9	-48.4	0.	-0. **
171.0	42966.3	-58.5	0.	-0. **
152.0	45380.0	-63.2	0.	-0. **
131.0	48376.5	-65.6	0.	-0. **
125.0	49316.7	-65.4	0.	-0. **
115.0	50974.5	-69.2	0.	-0. **
111.0	51673.3	-68.4	0.	-0. **
104.0	52955.5	-70.4	0.	-0. **
95.0	54745.6	-66.5	0.	-0. **
82.0	57688.5	-65.9	0.	-0. **
76.0	59201.5	-68.4	0.	-0. **
72.0	60281.9	-64.2	0.	-0. **
65.0	62337.8	-66.0	0.	-0. **
60.0	63958.7	-61.5	0.	-0. **
50.0	67723.5	-57.8	0.	-0. **
47.0	69004.0	-60.7	0.	-0. **
40.0	72301.4	-63.0	0.	-0. **
36.0	74462.4	-89.5	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

SIGNIFICANT LEVEL DATA
0669003902
WHITE SANDS SITE
TABLE IX (Cont)

WSTN SITE COORDINATES
E 483,580 FEET
N 185,045 FEET

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
30.0	78211.6	-62.0	0.	-0. **
21.0	85583.2	-57.5	0.	-0. **
19.0	87688.6	-54.7	0.	-0. **
15.0	92639.4	-59.5	0.	-0. **
11.0	99124.5	-55.6	0.	-0. **
9.0	103408.7	-50.7	0.	-0. **
6.0	112159.3	-51.0	0.	-0. **
5.0	116147.8	-45.0	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
006300390?
WHITE SANDS SITE
TABLE X

WSTM SITE COORDINATES
E 488,580 FEET
N 185,042 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	871.5	13.0	-10.1	19.0	1059.8	659.1	200.0	4.1	1.000249
4000.0	871.2	13.0	-10.1	19.1	1059.6	659.0	209.5	4.2	1.000249
4500.0	855.4	10.9	-10.4	21.1	1048.0	656.6	224.1	7.4	1.000247
5000.0	839.9	9.6	-10.8	22.6	1033.7	655.1	247.6	10.7	1.000243
5500.0	824.5	8.6	-11.2	23.4	1018.5	653.9	271.1	13.9	1.000239
6000.0	809.5	8.0	-11.6	23.6	1002.1	653.2	294.7	17.2	1.000235
6500.0	794.7	8.6	-12.0	21.9	981.5	654.0	309.1	19.9	1.000230
7000.0	780.2	9.3	-12.4	20.2	961.3	654.8	316.6	22.1	1.000225
7500.0	766.0	9.5	-13.0	19.0	943.2	655.0	323.0	23.3	1.000221
8000.0	751.9	8.4	-14.0	19.0	929.7	653.7	328.8	24.1	1.000217
8500.0	738.2	7.3	-14.9	19.0	916.3	652.3	333.6	25.0	1.000213
9000.0	724.6	6.1	-15.8	19.0	903.2	651.0	338.1	26.0	1.000210
9500.0	711.3	5.4	-16.5	18.9	889.0	650.1	338.4	28.3	1.000206
10000.0	698.1	5.1	-16.9	18.7	873.6	649.7	338.0	30.7	1.000203
10500.0	685.2	4.7	-17.3	18.5	858.4	649.4	335.9	32.8	1.000199
11000.0	672.5	4.4	-17.7	18.3	843.5	649.0	333.4	34.2	1.000195
11500.0	660.1	4.1	-18.1	18.1	828.8	648.6	330.3	34.8	1.000192
12000.0	647.8	3.2	-18.9	18.0	815.8	647.6	328.3	34.4	1.000189
12500.0	635.8	2.0	-19.9	18.0	803.6	646.2	326.9	34.2	1.000185
13000.0	623.1	0.9	-20.8	18.0	791.7	644.8	326.1	34.3	1.000182
13500.0	611.2	-0.3	-21.8	18.0	779.9	643.4	324.8	35.3	1.000179
14000.0	599.5	-1.5	-22.8	18.0	768.4	642.0	323.6	36.3	1.000176
14500.0	588.1	-2.6	-23.8	18.0	757.0	640.6	322.9	37.5	1.000173
15000.0	576.8	-3.8	-24.7	18.0	745.8	639.2	322.9	38.8	1.000170
15500.0	565.8	-5.0	-25.7	18.0	734.7	637.8	323.5	40.3	1.000168
16000.0	555.0	-6.2	-26.7	18.0	723.9	636.4	324.8	41.9	1.000165
16500.0	544.4	-7.3	-27.7	18.0	713.2	635.0	326.0	42.7	1.000162
17000.0	534.0	-8.5	-28.7	18.0	702.7	633.6	326.3	43.8	1.000160
17500.0	523.8	-9.7	-29.6	18.0	692.3	632.2	326.4	44.1	1.000157
18000.0	513.8	-10.8	-30.6	18.0	682.2	630.8	325.7	43.7	1.000155

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
060100Z3002
WHITE SANDS SITE
TABLE X. (Cont)

WSTN SITE COORDINATES
E 400,980 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
18500.0	503.9	-12.0	-31.6	18.0	673.1	629.3	324.5	41.6	1.000152
19000.0	493.8	-13.5	-32.7	18.2	662.4	627.5	323.1	39.0	1.000150
19500.0	483.9	-15.0	-33.9	18.3	652.9	625.8	320.8	36.0	1.000147
20000.0	474.2	-16.4	-35.1	18.5	643.4	624.0	319.3	33.5	1.000145
20500.0	464.7	-17.9	-36.2	18.6	634.2	622.2	319.0	31.6	1.000143
21000.0	455.6	-19.4	-37.4	18.8	625.1	620.4	319.8	31.3	1.000141
21500.0	446.3	-20.8	-38.6	18.9	616.1	618.6	321.3	31.2	1.000139
22000.0	437.2	-22.1	-39.6	19.0	606.7	617.0	324.3	30.8	1.000136
22500.0	428.0	-23.2	-40.5	19.0	596.5	615.7	325.9	30.6	1.000134
23000.0	419.1	-24.2	-41.4	19.0	586.4	614.4	326.6	30.4	1.000132
23500.0	410.3	-25.2	-42.3	19.0	576.6	613.1	326.1	30.3	1.000129
24000.0	401.7	-26.3	-43.1	19.0	566.9	611.8	325.0	30.8	1.000127
24500.0	393.3	-27.3	-44.0	19.0	557.4	610.5	323.6	31.4	1.000125
25000.0	385.1	-28.4	-44.9	19.0	548.0	609.2	323.2	31.8	1.000123
25500.0	377.0	-29.4	-45.8	19.0	538.8	607.9	323.2	32.2	1.000121
26000.0	369.1	-30.4	-46.7	19.0	529.8	606.6	324.1	32.4	1.000119
26500.0	361.4	-31.5	-47.6	19.0	521.0	605.3	326.0	32.0	1.000117
27000.0	353.8	-32.5	-48.5	19.0	512.3	604.0	328.8	31.1	1.000115
27500.0	346.4	-33.6	-49.4	19.0	503.7	602.7	331.9	30.6	1.000113
28000.0	338.9	-34.6	-50.8	17.8**	495.0	601.4	335.4	30.2	1.000111
28500.0	331.5	-35.7	-52.7	16.0**	486.3	600.1	338.0	30.6	1.000109
29000.0	324.2	-36.7	-54.8	14.1**	477.8	598.7	340.1	31.3	1.000107
29500.0	317.1	-37.8	-56.6	12.3**	469.4	597.3	339.5	33.7	1.000105
30000.0	310.1	-38.9	-58.7	10.5**	461.2	596.0	339.5	35.5	1.000103
30500.0	303.3	-39.9	-61.0	8.7**	453.2	594.6	340.4	36.2	1.000101
31000.0	296.7	-41.0	-63.7	6.8**	445.3	593.3	342.1	36.8	1.000099
31500.0	290.2	-42.1	-66.8	5.0**	437.5	591.9	344.6	37.4	1.000097
32000.0	283.8	-43.1	-70.7	3.2**	429.9	590.5	345.4	36.4	1.000096
32500.0	277.6	-44.2	-77.1	1.4**	422.4	589.2	345.6	35.0	1.000094
33000.0	271.4	-45.0	0.	-0. **	414.6	588.1	339.6	36.6	1.000092

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
0063003902
WHITE SANDS SITE

TABLE X (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	265.3	-45.2	0.	-0. **	405.5	587.9	332.9	38.3	1.000090
34000.0	259.4	-45.3	0.	-0. **	396.6	587.8	324.9	39.6	1.000088
34500.0	253.5	-45.4	0.	-0. **	387.9	587.6	317.9	41.4	1.000086
35000.0	247.8	-45.3	0.	-0. **	378.9	587.8	313.7	44.6	1.000084
35500.0	242.2	-44.9	0.	-0. **	369.7	588.3	310.0	46.5	1.000082
36000.0	236.8	-45.5	0.	-0. **	362.4	587.5	306.9	46.4	1.000081
36500.0	231.4	-46.1	0.	-0. **	355.2	586.7	305.1	46.9	1.000079
37000.0	226.2	-46.8	0.	-0. **	348.1	585.9	304.9	47.9	1.000078
37500.0	221.1	-47.4	0.	-0. **	341.1	585.1	304.3	48.5	1.000076
38000.0	216.1	-48.0	0.	-0. **	334.4	584.2	303.5	48.6	1.000074
38500.0	211.1	-48.8	0.	-0. **	327.9	583.2	303.3	48.5	1.000073
39000.0	206.2	-49.9	0.	-0. **	321.8	581.8	303.4	48.4	1.000072
39500.0	201.4	-51.0	0.	-0. **	315.8	580.4	303.1	48.2	1.000070
40000.0	196.7	-52.1	0.	-0. **	310.0	579.0	302.2	47.9	1.000069
40500.0	192.1	-53.1	0.	-0. **	304.2	577.5	301.2	47.3	1.000067
41000.0	187.6	-54.2	0.	-0. **	298.6	576.1	299.9	46.2	1.000065
41500.0	183.2	-55.3	0.	-0. **	293.1	574.7	299.3	45.5	1.000065
42000.0	179.0	-56.4	0.	-0. **	287.7	573.2	299.7	45.2	1.000064
42500.0	174.8	-57.5	0.	-0. **	282.4	571.8	299.5	44.4	1.000063
43000.0	170.7	-58.6	0.	-0. **	277.2	570.4	298.6	42.9	1.000062
43500.0	166.8	-59.5	0.	-0. **	271.7	569.1	299.4	42.0	1.000061
44000.0	162.8	-60.5	0.	-0. **	266.4	567.8	301.4	41.8	1.000059
44500.0	158.7	-61.5	0.	-0. **	261.2	566.5	303.2	41.6	1.000058
45000.0	154.8	-62.5	0.	-0. **	256.1	565.2	304.8	41.7	1.000057
45500.0	151.1	-63.3	0.	-0. **	250.9	564.1	307.9	42.9	1.000056
46000.0	147.4	-63.7	0.	-0. **	245.2	563.8	311.2	44.3	1.000055
46500.0	143.8	-64.1	0.	-0. **	239.6	563.0	313.6	44.5	1.000053
47000.0	140.3	-64.5	0.	-0. **	234.2	562.5	314.0	44.8	1.000052
47500.0	136.8	-64.9	0.	-0. **	228.9	561.9	313.9	45.5	1.000051
48000.0	133.5	-65.3	0.	-0. **	223.7	561.4	322.0	42.8	1.000050

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
0063093902
WHITE SANDS SITE

MSTN SITE COORDINATES
E 488,580 FEET
N 185,945 FEET

TABLE X. (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	130.2	-65.6	0.	-0. **	218.5	561.0	325.2	39.8	1.000049
49000.0	127.0	-65.5	0.	-0. **	213.0	561.1	326.5	36.9	1.000047
49500.0	123.9	-65.8	0.	-0. **	208.1	560.7	330.3	35.0	1.000046
50000.0	120.8	-67.0	0.	-0. **	204.1	559.1	330.7	34.1	1.000045
50500.0	117.8	-68.1	0.	-0. **	200.1	557.6	330.7	33.1	1.000045
51000.0	114.9	-69.2	0.	-0. **	196.2	556.1	329.5	32.2	1.000044
51500.0	112.0	-68.6	0.	-0. **	190.7	556.9	328.3	31.3	1.000042
52000.0	109.2	-68.9	0.	-0. **	186.2	556.5	325.1	31.6	1.000041
52500.0	106.4	-69.7	0.	-0. **	182.3	555.4	321.7	32.0	1.000041
53000.0	103.8	-70.3	0.	-0. **	178.2	554.6	315.5	30.2	1.000040
53500.0	101.2	-69.2	0.	-0. **	172.9	556.1	307.6	27.1	1.000038
54000.0	98.6	-68.1	0.	-0. **	167.6	557.5	300.5	25.2	1.000037
54500.0	96.2	-67.0	0.	-0. **	162.6	559.0	295.1	25.9	1.000036
55000.0	93.8	-66.4	0.	-0. **	158.1	559.8	289.7	26.6	1.000035
55500.0	91.5	-66.3	0.	-0. **	154.1	560.0	284.8	26.2	1.000034
56000.0	89.2	-66.2	0.	-0. **	150.2	560.1	279.9	25.8	1.000033
56500.0	87.0	-66.1	0.	-0. **	146.5	560.2	280.9	23.0	1.000033
57000.0	84.9	-66.0	0.	-0. **	142.8	560.4	283.4	19.5	1.000032
57500.0	82.8	-65.9	0.	-0. **	139.2	560.5	290.9	16.1	1.000031
58000.0	80.7	-66.4	0.	-0. **	136.1	559.9	303.0	12.9	1.000030
58500.0	78.7	-67.2	0.	-0. **	133.2	558.7	317.7	9.9	1.000030
59000.0	76.8	-68.1	0.	-0. **	130.4	557.6	344.5	7.9	1.000029
59500.0	74.9	-67.3	0.	-0. **	128.7	558.6	11.3	5.8	1.000028
60000.0	73.0	-65.5	0.	-0. **	122.5	561.1	5.6	7.8	1.000027
60500.0	71.2	-64.7	0.	-0. **	119.0	562.2	350.1	10.9	1.000026
61000.0	69.5	-65.0	0.	-0. **	116.3	561.7	338.8	12.6	1.000026
61500.0	67.8	-65.4	0.	-0. **	113.6	561.2	339.7	11.5	1.000025
62000.0	66.1	-65.8	0.	-0. **	111.0	560.8	332.8	10.4	1.000025
62500.0	64.5	-65.5	0.	-0. **	108.2	561.0	338.5	12.8	1.000024
63000.0	62.9	-64.2	0.	-0. **	104.9	562.9	345.4	15.5	1.000023

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. '67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
0063003902
WHITE SANDS SITE

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	61.4	-62.8	0.	-0. **	101.6	564.8	355.6	17.5	1.000023
64000.0	59.9	-61.5	0.	-0. **	98.6	566.5	9.1	18.9	1.000022
64500.0	58.4	-61.0	0.	-0. **	96.0	567.2	21.2	20.1	1.000021
65000.0	57.0	-60.5	0.	-0. **	93.5	567.8	25.1	20.0	1.000021
65500.0	55.7	-60.0	0.	-0. **	91.0	568.5	29.1	20.0	1.000020
66000.0	54.4	-59.5	0.	-0. **	88.6	569.2	31.4	18.0	1.000020
66500.0	53.1	-59.0	0.	-0. **	86.3	569.8	33.2	15.3	1.000019
67000.0	51.8	-58.5	0.	-0. **	84.1	570.5	32.7	12.4	1.000019
67500.0	50.5	-58.0	0.	-0. **	81.9	571.1	27.4	9.0	1.000018
68000.0	49.3	-58.4	0.	-0. **	80.1	570.6	22.1	5.7	1.000018
68500.0	48.2	-59.6	0.	-0. **	78.6	569.1	10.7	6.0	1.000017
69000.0	47.0	-60.7	0.	-0. **	77.1	567.6	358.6	6.7	1.000017
69500.0	45.9	-61.0	0.	-0. **	75.4	567.1	352.1	7.9	1.000017
70000.0	44.8	-61.4	0.	-0. **	73.7	566.6	353.9	9.9	1.000016
70500.0	43.7	-61.7	0.	-0. **	72.0	566.2	355.7	11.9	1.000016
71000.0	42.6	-62.1	0.	-0. **	70.4	565.7	358.2	15.2	1.000016
71500.0	41.6	-62.6	0.	-0. **	68.8	565.2	1.1	19.1	1.000015
72000.0	40.6	-62.8	0.	-0. **	67.2	564.7	4.0	23.0	1.000015
72500.0	39.6	-62.7	0.	-0. **	65.6	564.9	7.7	23.5	1.000015
73000.0	38.7	-61.9	0.	-0. **	63.8	566.0	11.6	23.9	1.000014
73500.0	37.7	-61.1	0.	-0. **	62.0	567.1	15.0	23.9	1.000014
74000.0	36.8	-60.2	0.	-0. **	60.3	568.1	16.8	22.4	1.000013
74500.0	35.9	-59.5	0.	-0. **	58.6	569.1	18.6	20.9	1.000013
75000.0	35.1	-59.9	0.	-0. **	57.3	568.7	20.3	18.6	1.000013
75500.0	34.2	-60.2	0.	-0. **	56.0	568.2	21.8	15.3	1.000012
76000.0	33.4	-60.5	0.	-0. **	54.7	567.8	23.3	12.1	1.000012
76500.0	32.6	-60.9	0.	-0. **	53.5	567.3	15.8	12.1	1.000012
77000.0	31.8	-61.2	0.	-0. **	52.3	566.9	4.5	13.8	1.000012
77500.0	31.1	-61.5	0.	-0. **	51.1	566.4	353.3	14.9	1.000011
78000.0	30.3	-61.9	0.	-0. **	50.0	566.0	354.8	17.1	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. '67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
00630003902
WHITE SANDS SITE
TABLE X (Cont)

MSTR SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
78500.0	29.8	-61.8	0.	-0. **	48.8	566.0	356.5	19.3	1.000011
79000.0	28.9	-61.5	0.	-0. **	47.5	566.5	358.4	21.3	1.000011
79500.0	28.2	-61.2	0.	-0. **	46.3	566.9	2.9	22.0	1.000010
80000.0	27.5	-60.9	0.	-0. **	45.2	567.3	7.4	22.4	1.000010
80500.0	26.9	-60.6	0.	-0. **	44.0	567.7	11.9	22.8	1.000010
81000.0	26.2	-60.3	0.	-0. **	42.9	568.1	13.0	23.4	1.000010
81500.0	25.6	-60.0	0.	-0. **	41.8	568.5	13.0	24.0	1.000009
82000.0	25.0	-59.7	0.	-0. **	40.8	568.9	13.1	24.7	1.000009
82500.0	24.4	-59.4	0.	-0. **	39.7	569.3	12.1	24.8	1.000009
83000.0	23.8	-59.1	0.	-0. **	38.7	569.7	10.5	24.5	1.000009
83500.0	23.2	-58.8	0.	-0. **	37.7	570.1	8.8	24.2	1.000008
84000.0	22.7	-58.5	0.	-0. **	36.8	570.5	6.2	24.3	1.000008
84500.0	22.1	-58.2	0.	-0. **	35.9	570.9	2.0	24.9	1.000008
85000.0	21.6	-57.9	0.	-0. **	35.0	571.3	357.8	25.5	1.000008
85500.0	21.1	-57.6	0.	-0. **	34.1	571.7	353.5	25.8	1.000008
86000.0	20.6	-56.9	0.	-0. **	33.2	572.5	349.1	24.0	1.000007
86500.0	20.1	-56.3	0.	-0. **	32.3	573.4	344.6	22.3	1.000007
87000.0	19.6	-55.6	0.	-0. **	31.4	574.3	340.2	20.6	1.000007
87500.0	19.2	-55.0	0.	-0. **	30.6	575.2	332.8	18.7	1.000007
88000.0	18.7	-55.0	0.	-0. **	29.9	575.1	325.1	16.8	1.000007
88500.0	18.3	-55.5	0.	-0. **	29.3	574.5	317.5	14.9	1.000007
89000.0	17.8	-56.0	0.	-0. **	28.6	573.8	312.4	14.8	1.000006
89500.0	17.4	-56.5	0.	-0. **	28.0	573.2	308.6	15.5	1.000006
90000.0	17.0	-56.9	0.	-0. **	27.4	572.5	304.8	16.3	1.000006
90500.0	16.6	-57.4	0.	-0. **	26.8	571.9	303.1	16.7	1.000006
91000.0	16.2	-57.9	0.	-0. **	26.3	571.3	304.3	16.5	1.000006
91500.0	15.8	-58.4	0.	-0. **	25.7	570.6	305.5	16.4	1.000006
92000.0	15.5	-58.9	0.	-0. **	25.1	570.0	306.6	16.7	1.000006
92500.0	15.1	-59.4	0.	-0. **	24.6	569.3	307.3	19.0	1.000005
93000.0	14.7	-59.3	0.	-0. **	24.0	569.4	308.1	21.3	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
0063003902
WHITE SANDS SITE
TABLE X (Cont).

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.4	-59.0	0.	-0. **	23.4	569.8	308.9	23.6	1.000005
94000.0	14.1	-58.7	0.	-0. **	22.8	570.2	305.8	23.8	1.000005
94500.0	13.7	-58.4	0.	-0. **	22.3	570.6	302.6	23.8	1.000005
95000.0	13.4	-58.1	0.	-0. **	21.7	571.0	299.3	23.9	1.000005
95500.0	13.1	-57.8	0.	-0. **	21.2	571.4	296.7	23.9	1.000005
96000.0	12.8	-57.5	0.	-0. **	20.6	571.8	294.3	23.9	1.000005
96500.0	12.5	-57.2	0.	-0. **	20.1	572.2	291.9	23.8	1.000004
97000.0	12.2	-56.9	0.	-0. **	19.6	572.6	290.6	24.1	1.000004
97500.0	11.9	-56.6	0.	-0. **	19.1	573.0	291.6	24.9	1.000004
98000.0	11.6	-56.3	0.	-0. **	18.6	573.4	292.6	25.8	1.000004
98500.0	11.3	-56.0	0.	-0. **	18.2	573.8	293.6	26.6	1.000004
99000.0	11.1	-55.7	0.	-0. **	17.7	574.2	294.9	28.0	1.000004
99500.0	10.8	-55.2	0.	-0. **	17.3	574.9	296.3	29.6	1.000004
100000.0	10.6	-54.6	0.	-0. **	16.8	575.6	297.7	31.2	1.000004
100500.0	10.3	-54.0	0.	-0. **	16.4	576.4	298.2	33.1	1.000004
101000.0	10.1	-53.5	0.	-0. **	16.0	577.1	296.6	35.7	1.000004
101500.0	9.8	-52.9	0.	-0. **	15.6	577.9	295.1	38.3	1.000003
102000.0	9.6	-52.3	0.	-0. **	15.2	578.0	293.5	40.9	1.000003
102500.0	9.4	-51.7	0.	-0. **	14.8	579.4	289.7	41.4	1.000003
103000.0	9.2	-51.2	0.	-0. **	14.4	580.1	285.2	41.4	1.000003
103500.0	9.0	-50.7	0.	-0. **	14.0	580.7	280.8	41.4	1.000003
104000.0	8.8	-50.7	0.	-0. **	13.7	580.7	276.6	41.4	1.000003
104500.0	8.6	-50.7	0.	-0. **	13.4	580.7	273.9	42.1	1.000003
105000.0	8.4	-50.8	0.	-0. **	13.1	580.7	271.1	42.7	1.000003
105500.0	8.2	-50.8	0.	-0. **	12.8	580.7	268.4	43.3	1.000003
106000.0	8.0	-50.8	0.	-0. **	12.5	580.6	267.5	43.5	1.000003
106500.0	7.8	-50.8	0.	-0. **	12.2	580.6	267.8	43.5	1.000003
107000.0	7.6	-50.8	0.	-0. **	11.9	580.6	268.0	43.4	1.000003
107500.0	7.4	-50.8	0.	-0. **	11.7	580.6	268.3	43.4	1.000003
108000.0	7.3	-50.9	0.	-0. **	11.4	580.5	270.1	45.0	1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

UPPER AIR DATA
0069003902
WHITE SANDS SITE

TABLE X (Cont).

NSTN SITE COORDINATES
E 448,380 FEET
N 185,048 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
108500.0	7.1	-50.9	0.	-0. **	11.1	580.5	271.9	44.5	1.000002
109000.0	6.9	-50.9	0.	-0. **	10.9	580.5	273.8	48.1	1.000002
109500.0	6.8	-50.9	0.	-0. **	10.6	580.5	274.9	49.8	1.000002
110000.0	6.6	-50.9	0.	-0. **	10.4	580.5	275.1	51.6	1.000002
110500.0	6.5	-50.9	0.	-0. **	10.2	580.4	275.3	53.4	1.000002
111000.0	6.3	-51.0	0.	-0. **	9.9	580.4	275.6	55.2	1.000002
111500.0	6.2	-51.0	0.	-0. **	9.7	580.4	275.0	56.3	1.000002
112000.0	6.0	-51.0	0.	-0. **	9.5	580.4	274.4	57.2	1.000002
112500.0	5.9	-50.5	0.	-0. **	9.2	581.0	273.7	58.2	1.000002
113000.0	5.8	-49.7	0.	-0. **	9.0	582.0			1.000002
113500.0	5.6	-49.0	0.	-0. **	8.8	583.0			1.000002
114000.0	5.5	-48.2	0.	-0. **	8.5	584.0			1.000002
114500.0	5.4	-47.5	0.	-0. **	8.3	584.9			1.000002
115000.0	5.3	-46.7	0.	-0. **	8.1	585.9			1.000002
115500.0	5.2	-46.0	0.	-0. **	7.9	586.9			1.000002
116000.0	5.0	-45.2	0.	-0. **	7.7	587.9			1.000002

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
11 DEC. 67 1540 HRS MST
ASCENSION NO. 993

MANDATORY LEVELS
0063003902
WHITE SANDS SITE
TABLE XI

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

PRESSURE	GEOPOTENTIAL	TEMPERATURE		REL. HUM.	WIND DATA	
		AIR	DEWPOINT	PERCENT	DIRECTION	SPEED
MILLIBARS	FEET	DEGREES CENTIGRADE			DEGREES(TN)	KNOTS
850.0	4673.	10.2	-10.5	22.	232.2	8.5
800.0	6317.	8.4	-11.8	23.	306.4	19.1
750.0	8069.	8.2	-14.1	19.	329.7	24.2
700.0	9924.	5.1	-16.9	19.	338.3	30.4
650.0	11903.	3.4	-18.7	18.	328.6	34.4
600.0	14013.	-1.4	-22.7	18.	323.6	36.4
550.0	16264.	-6.7	-27.2	18.	325.5	42.1
500.0	18679.	-12.6	-32.0	18.	324.0	40.6
450.0	21279.	-20.2	-38.1	19.	320.4	31.2
400.0	24105.	-26.5	-43.3	19.	324.6	30.9
350.0	27228.	-33.1	-48.9	19.	330.2	30.8
300.0	30730.	-40.5	-62.3	8. **	341.0	36.5
250.0	34746.	-45.5	0.	-0.**	315.4	43.4
200.0	39588.	-51.3	0.	-0.**	302.8	48.1
175.0	42396.	-57.4	0.	-0.**	299.5	44.5
150.0	45544.	-63.4	0.	-0.**	308.8	43.3
125.0	49195.	-65.4	0.	-0.**	330.2	35.4
100.0	53583.	-60.7	0.	-0.**	304.2	25.7
80.0	58013.	-65.7	0.	-0.**	307.3	11.7
70.0	60665.	-64.9	0.	-0.**	339.8	12.9
60.0	63755.	-61.5	0.	-0.**	7.7	18.8
50.0	67496.	-57.8	0.	-0.**	25.2	7.6
40.0	72042.	-63.0	0.	-0.**	6.1	23.4
30.0	77909.	-62.0	0.	-0.**	355.4	18.0
25.0	81629.	-59.7	0.	-0.**	13.1	24.6
20.0	86238.	-56.1	0.	-0.**	343.8	22.0
15.0	92219.	-49.5	0.	-0.**	307.5	19.6
10.0	100649.	-53.3	0.	-0.**	296.2	36.4
7.0	108258.	-50.9	0.	-0.**	273.1	47.6
5.0	115495.	-45.0	0.	-0.**		

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND								AZIMUTH (DEGREES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)		
		11-216 FT		216-4000 FT		4000-69331 FT		TOTAL					
RAWINSONDE	PIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		RANGE	N-S	E-W
1300	1230	0.0	0.0	2.7N	4.6W	14.6N	11.8W	17.3N	16.4W	355.5	72.0	71.8N	5.7W
1300	1300	0.0	0.0	2.8N	5.3W	14.6N	11.8W	17.4N	17.1W	354.9	72.2	71.9N	6.4W
1300	1330	0.0	0.0	1.9N	5.3W	14.6N	11.8W	16.5N	17.1W	354.8	71.3	71.0N	6.4W
1300	1345	0.0	0.0	0.5N	6.2W	14.6N	11.8W	15.1N	18.0W	354.0	70.0	69.6N	7.3W
1300	1400	0.0	0.0	0.2N	5.2W	14.6N	11.8W	14.8N	17.0W	354.8	69.6	69.3N	6.3W
1300	1415	2.2S	0.0	0.5S	7.2W	14.6N	11.8W	11.9N	19.0W	352.9	66.9	66.4N	8.3W
1300	1433	3.0S	0.0	1.2S	4.7W	14.6N	11.8W	10.4N	16.5W	354.9	65.2	64.9N	5.8W
1300	1443	2.2S	0.0	3.0S	6.8W	14.6N	11.8W	9.4N	18.6W	353.0	64.4	63.9N	7.9W
1540	1456	5.3S	0.0	3.8S	6.8W	8.6N	18.4W	0.5S	25.2W	345.0	55.9	54.0N	14.5W

	AZIMUTH (DEGREES)	MILES FROM LAUNCHER		
		RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 86.1 DEGREES QE)	016.0	56.7	54.5N	15.6E
NO WIND IMPACT	011.1	55.5	54.5N	10.7E
PREDICTED SECOND-STAGE IMPACT	356.0	65.0	64.8N	4.5W
SECOND-STAGE IMPACT, RADAR TRACK	007.2	99.4	98.6N	12 4E
PREDICTED BOOSTER IMPACT	100.0	0.3	0.1S	0.3E
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A	N/A

TABLE XII. IMPACT PREDICTION DATA
NIKE-HYDAC STV SR 069

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*
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Ft. Monmouth, New Jersey

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2b. GROUP

3. REPORT TITLE
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4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*

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10. AVAILABILITY/LIMITATION NOTICES
[redacted].

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	U.S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico

13. ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR 069) are presented for the Space and Missile Systems Organization and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

DD FORM 1 JAN 64 1473

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Security Classification

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Security Classification

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
1. Ballistics						
2. Meteorology						
3. Wind						

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